11-5855-263-10 TM 11-5855-263-10

DEPARTMENT OF THE ARMY
TECHNICAL MANUAL

OPERATOR'S MANUAL

AVIATOR'S NIGHT VISION IMAGING SYSTEM

AN/AVS-6(V)1
(NSN 5855-01-138-4749)
AND
AN/AVS-6(V)2
(NSN 5855-01-138-4748)

5 July 1983

D 101.11:

READEX FICHE best copy available

WARNING

DANGER OF EXPLOSION

- Batteries used in this equipment contain sulphur dioxide gas under pressure.
- Do NOT heat, puncture, disassemble, short circuit, attempt to recharge, or otherwise tamper with batteries.
- **Turnoff equipment if battery compartment becomes unduly hot. If possible, wait until batteries have cooled before removing them.**
- Batteries have safety vents to prevent explosion. When they are venting gas, you will smell it (very irritating) or hear sound of gas escaping. When safety vents have operated, batteries are fairly safe from bursting, but still must be handled with care because of heat.

WARNING

TOXIC MATERIALS

The image intensifier tube in each monocular contains toxic materials.

Broken tube may be caused from damage to binocular assembly, especially if monocular housing is cracked by force.

f tube breaks:

Do NOT inhale phosphor screen material.

Do NOT allow phosphor screen material to come in contact with mouth or open wounds.

f phosphor screen material comes in contact with kin, wash immediately with soap and water.

phosphor screen material is inhaled/swallowed:

Induce vomiting.

See doctor right away.

FIRST AID

FOR FIRST AID OR ARTIFICIAL RESPIRATION, SEE FM 21-11, FIRST AID FOR SOLDIERS

ECHNICAL MANUAL
IO. 11-5855-263-10

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 5 July 1983

OPERATOR'S MANUAL
AVIATOR'S NIGHT VISION IMAGING SYSTEM
AN/AVS-6(V)1
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AND

AN/AVS-6(V)2
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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703. A reply will be furnished direct to you.

		Page
CHAPTER 1.	INTRODUCTION	1-3
Section I.	General Information	1-3
II.	Equipment Description	1-8
III.	Technical Principles of Operation	1-23

APTER 2. OPERATING INSTRUCTIONS
ection I. Description and Use of Operator's Controls and Indicators 2-1
II. Preoperational Checks 2-10
III. Operation Under Usual Conditions 2-12
IV. Operation Under Unusual Conditions 2-78

IAPTER 3. MAINTENANCE INSTRUCTIONS 3-1
Section I. Lubrication Instructions ... 3-1
II. Maintenance Procedures .. 3-1

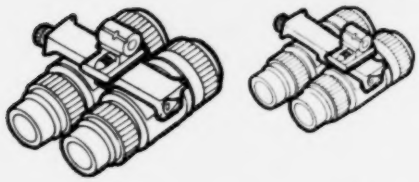
ENDIX A. REFERENCES A-1
B. COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS B-1

APPENDIX C. ADDITIONAL
AUTHORIZATION LIST.... C-1

D. EXPENDABLE SUPPLIES
AND MATERIALS LIST.... D-1

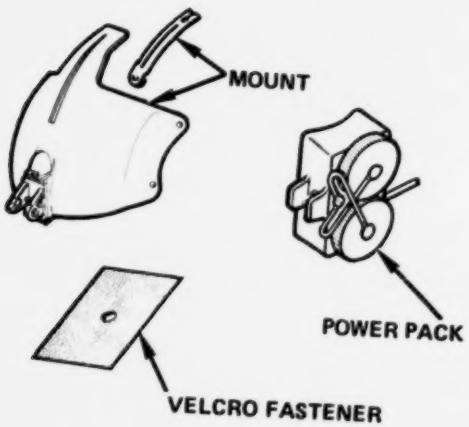
ALPHABETICAL INDEX Index-1

EQUIPMENT USED BY OPERATOR

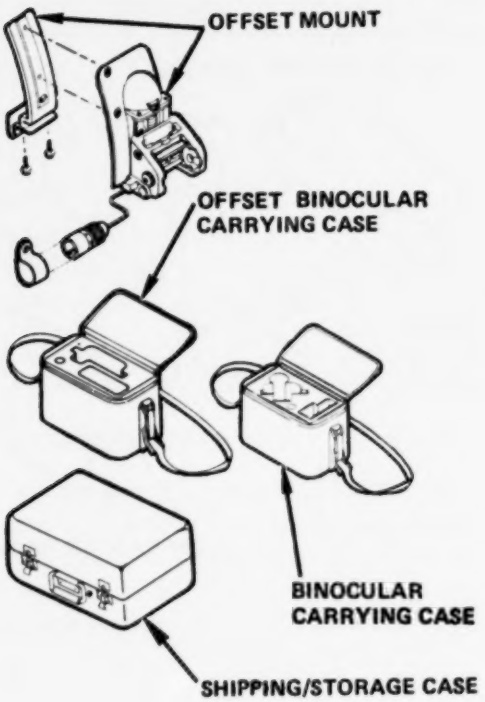


OFFSET
BINOCULAR ASSEMBLY

BINOCULAR ASSEMBLY



EQUIPMENT USED BY OPERATOR



EQUIPMENT USED BY OPERATOR

CHAPTER 1
INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE

a. Type of Manual. Operator's.

b. Model Numbers and Equipment Name. Aviator's Night Vision Imaging System (ANVIS) AN/AVS-6(V)1 and AN/AVS-6(V)2.

c. Purpose of Equipment. Provides improved night vision using available light from the sky.

1-2. GENERAL MAINTENANCE

a. Maintenance Forms and Records. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System (TAMMS).

b. Maintenance of Mount Contacts. Turn in mount to Aviation Unit Maintenance (AVUM) every 6 months or after 100 hours of operation, whichever occurs first.

1-3. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR'S)

If your ANVIS needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703. We'll send you a reply.

1-4. REFERENCE INFORMATION

This listing includes the nomenclature cross reference list, list of abbreviations, and explanation of terms (glossary) used in this manual. Refer to TM 11-5855-263-20 for AVUM instructions.

a. Nomenclature Cross Reference List.

Common Name	Official Nomenclature
Pivot and Adjustment Shelf	Shelf and Slide Assembly
Offset Pivot and Adjustment Shelf	Pivot and Adjustment Shelf Assembly
Tilt Adjustment Lever	Shaft, Eccentric

b. List of Abbreviations.

ANVIS ..... Aviator's Night Vision Imaging System AN/AVS-6

AVUM ..... Aviation Unit Maintenance

EIR .... Equipment Improvement Recommendation

mm ..... Millimeters

PAS ..... Pivot and Adjustment Shelf

c. Glossary.

BINOCULAR ASSEMBLY. The assembly which attaches to the mount. Contains two monoculars and supporting shelf.

DARK (OR DARKENED AREA). A place in which there is very little light. Does not mean *total* darkness. Generally, this means conditions similar to a moonlit or starlit night.

DARK-ADAPTED. Having one's eyes adjusted to darkness. Generally, it takes about 15 minutes in a dark area for one's eyes to adjust.

EYEPIECE LENS ASSEMBLY. Consists of eyepiece lens cell and eyepiece focus ring. Attaches to the rear of the monocular housing.

MOUNT. The ANVIS visor guard which replaces the standard SPH-4 visor guard. For use only with standard binocular assembly, NOT offset binocular assembly.

POWER PACK MOUNT CONNECTOR. The connector between the power pack and mount (or offset mount).

OBJECTIVE LENS ASSEMBLY. Consists of objective lens cell and objective focus ring. Attaches to front of monocular housing.

OFFSET BINOCULAR ASSEMBLY. A specialized binocular assembly for use with SPH-4 helmets modified with the helmet-mounted sight system. Mates to offset mount; cannot be used with (standard) mount.

OFFSET MOUNT. Same purpose and use as mount, but used with SPH-4 helmets modified with helmet-mounted sight system.

POWER CONVERTER. An aircraft component which converts 28 vdc aircraft power to 3.8 vdc for use by ANVIS.

POWER PACK. Contains two lithium batteries. Supplies either aircraft or battery power to binocular. Attaches to back of user's helmet.

Section II. EQUIPMENT DESCRIPTION

1-5. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

a. Characteristics.

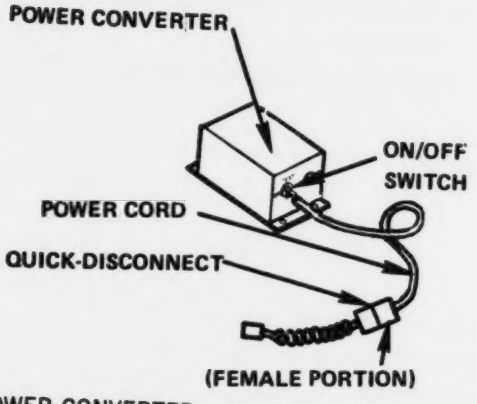
- Uses available light from the sky for improved night vision.
- Allows pilot to fly terrain flight modes at night.

b. Capabilities and Features.

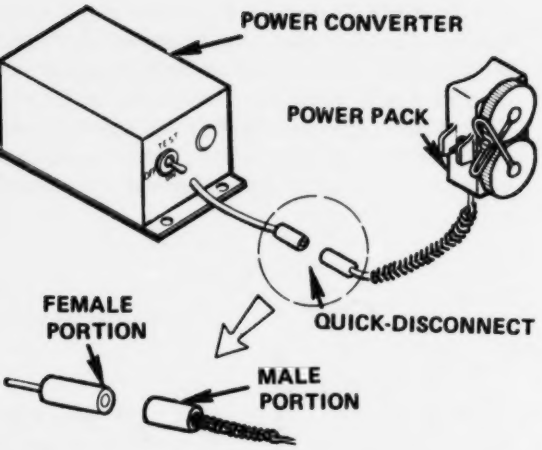
- AN/AVS-6(V)1 mounts directly to standard SPH-4 flight helmet; offset mount allows attachment of AN/AVS-6(V)2 to SPH-4 helmet modified with the helmet-mounted sight system.
- Powered by either battery or aircraft power.
- Focusable from 254 mm to infinity.

- Built-in low battery indicator.
- Binocular can be adjusted for distance between the eyes, vertical, tilt, eye relief, diopter setting, and focus.
- Stowable in a flipped-up position while still on helmet.
- Breaks away under crash loading.

1-6. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

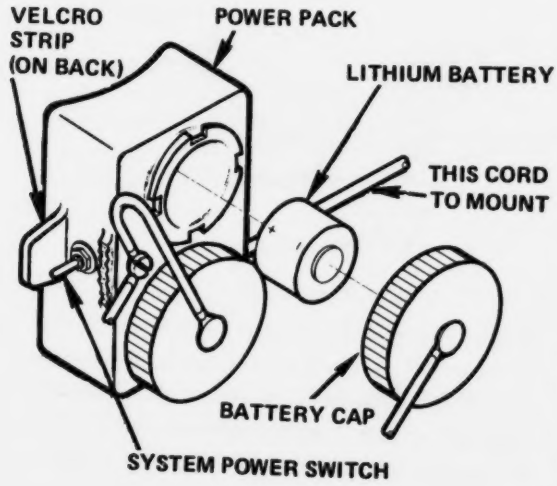


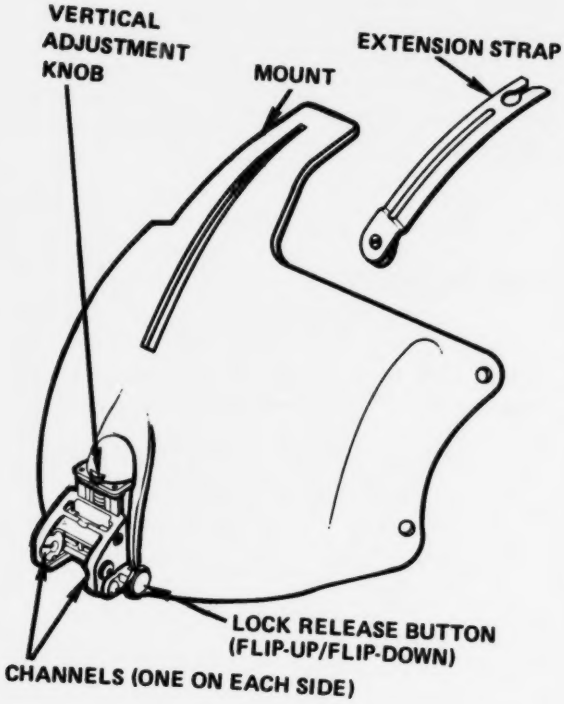
POWER CONVERTER. Used with ANVIS. Changes 28 vdc aircraft power to 3.8 vdc power. Permanently attached to aircraft. Includes power cord with female portion of the quick-disconnect and detachable coiled cord. Has ON/OFF switch with press-to-test position. Not part of ANVIS.



QUICK-DISCONNECT. A simple jack-type connector which connects aircraft power to the power pack. Allows you to quickly exit the aircraft in an emergency.

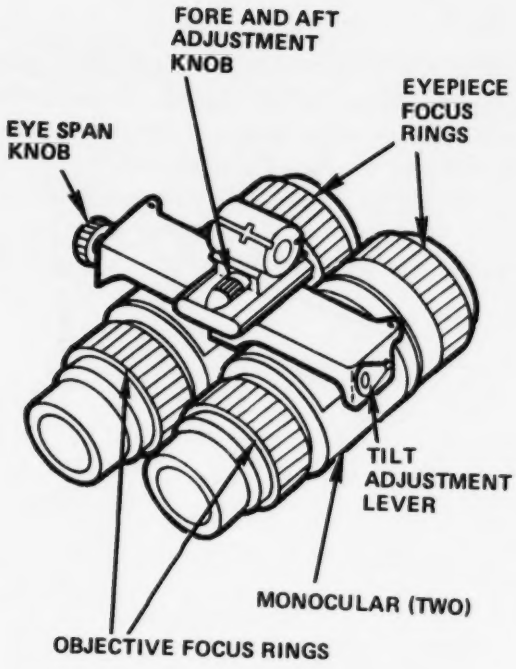
POWER PACK. Attached by velcro strips to your helmet. Contains two lithium batteries. Provides for automatic switch over to battery power when aircraft power fails. Uses only one battery at a time. Lights up a low battery indicator in mount when battery in use is low. Also contains the system power switch. Power pack is a replaceable item.




VERTICAL
ADJUSTMENT
KNOB
MOUNT
EXTENSION STRAP
LOCK RELEASE BUTTON
(FLIP-UP/FLIP-DOWN)
CHANNELS (ONE ON EACH SIDE)

HELMET. Your personal SPH-4 helmet is not part of ANVIS.

ANVIS VISOR GUARD/MOUNT (MOUNT). Replaces your SPH-4 helmet visor guard. Protects visor from scratches and other abuse. Contains channels for mounting binocular to helmet. Provides for the flip-up/flip-down, breakaway, and vertical adjustment. The mount is a replaceable assembly. It includes extension strap for visor.


FORE AND AFT
ADJUSTMENT
KNOB
EYEPIECE
FOCUS
RINGS
EYE SPAN
KNOB
TILT
ADJUSTMENT
LEVER
MONOCULAR (TWO)
OBJECTIVE FOCUS RINGS

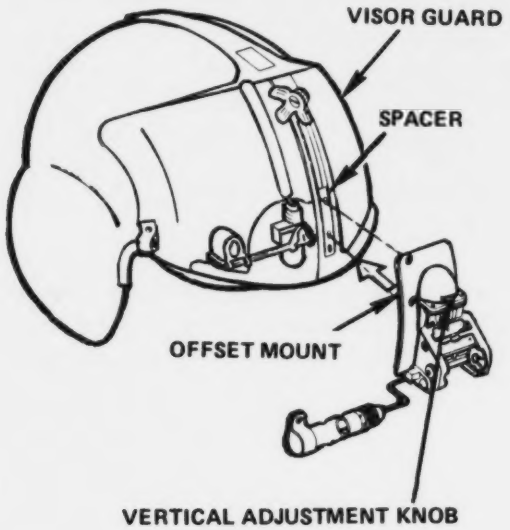
BINOCULAR ASSEMBLY (AN/AVS-6(V)1). Attaches to, and is easily removable from, the mount.

Contains two monoculars and the adjustments for:

- tilt
- fore and aft movement
- eye span
- objective focus
- eyepiece focus.

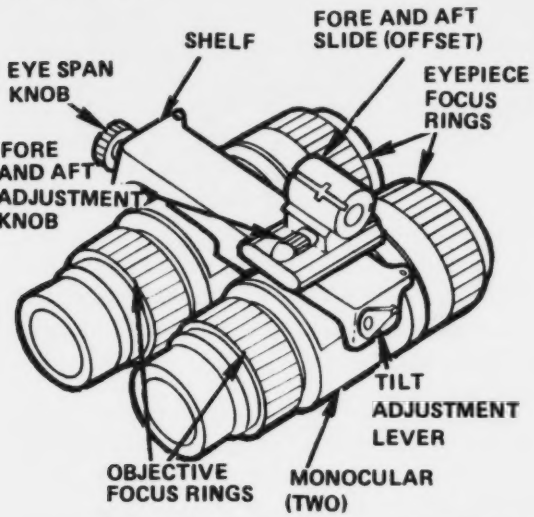
The monocular assemblies collect incoming light, focus it, and increase its intensity so that you can observe a dimly lit scene. You see a green image.

OFFSET MOUNT. For use with SPH-4 helmet modified with the helmet-mounted sight system.

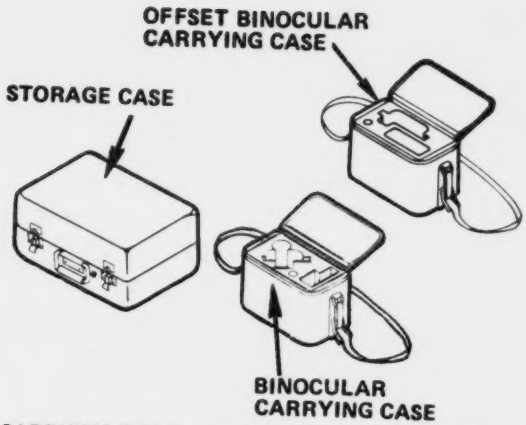


Attaches to existing visor guard. This is the mount for the offset binocular. Provides for breakaway and vertical adjustment.

OFFSET BINOCULAR ASSEMBLY (AN/AVS-6(V)2). Contains the same adjustments and performs the same function as the standard binocular assembly (AN/AVS-6(V)1).



Fore and aft slide is offset on shelf to mate with offset mount for use on SPH-4 helmet modified with helmet-mounted sight system.



CARRYING CASE. Made of soft cloth material with foam inserts for protection of binocular and power pack when not in use.

STORAGE CASE. Made of aluminum alloy. Constructed in two sections (top, bottom) connected by six toggle-type fasteners which provide easy access to carrying case and mount stored inside. Fasteners join the two sections into water/vapor proof container when closed tightly. Two polyurethane foam inserts protect carrying case during shipment or storage.

1-7. DIFFERENCES BETWEEN MODELS

This manual covers both the AN/AVS-6(V)1 and AN/AVS-6(V)2 models of ANVIS. The binoculars are identical except fore and aft slide is offset on AN/AVS-6(V)2 for use on helmets modified with helmet-mounted sight system. Check pivot and adjustment shelf (PAS) on your ANVIS for an identification plate. **This plate is illustrated for both models in paragraph 2-33.**

1-8. EQUIPMENT DATA

Operator Adjustments

Vertical:	19.5 mm total travel
Eyepiece Focus:	+2 to −6 diopters
Fore and Aft:	15.8 mm total travel
Tilt:	10 degrees total
Eye Span:	21 mm total travel (51 mm to 72 mm)
Objective Focus:	254 mm to infinity

Electrical	
Voltage Required:	3.0 vdc nominal
Current Drawn by Binocular:	400 ma peak, 100 ma steady state
Battery, Lithium (BA-5567( )/U)	
Cell Life:	16 hours at 73.4° F (23° C)
Mechanical	
Binocular Breakaway at:	10 g nominal
Weight:	500 grams (approx)
Optical	
Objective Focus Range:	254 mm to infinity
Eyepiece Focus Range:	+2 to −6 diopters
Magnification:	Unity (1×)
Field of View:	40°

Environmental Ambient Temperature Limits of Operation:	−15.6° F (−32° C) to 125.6° F (52° C)
Illumination Required:	Overcast starlight to moonlight

Section III. TECHNICAL PRINCIPLES OF OPERATION

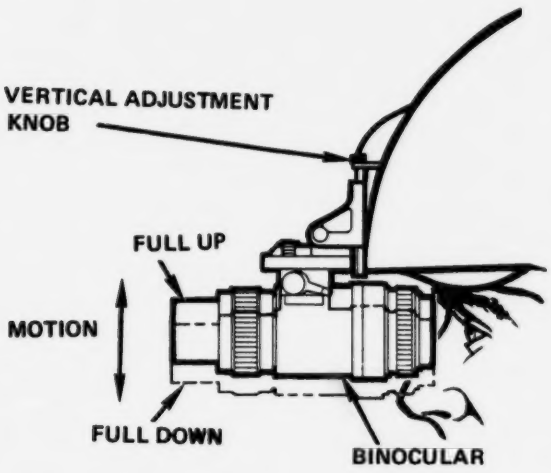
See chapter 2, section I, Description and Use of Operator's Controls and Indicators.

CHAPTER 2
OPERATING INSTRUCTIONS

Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

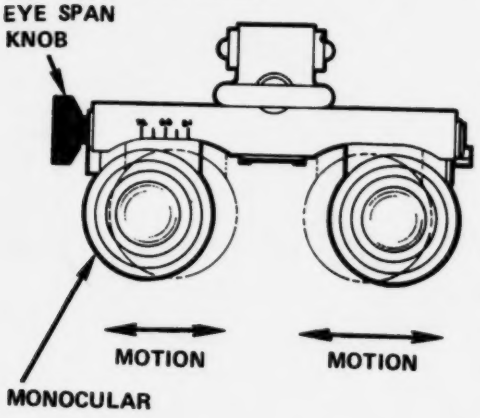
2-1. VERTICAL ADJUSTMENT KNOB

The binocular can be moved up or down to match the operator's distance from the eyes to the helmet. Vertical movement is performed by turning vertical adjustment knob. The adjustment is self-locking.



2-2. EYE SPAN KNOB

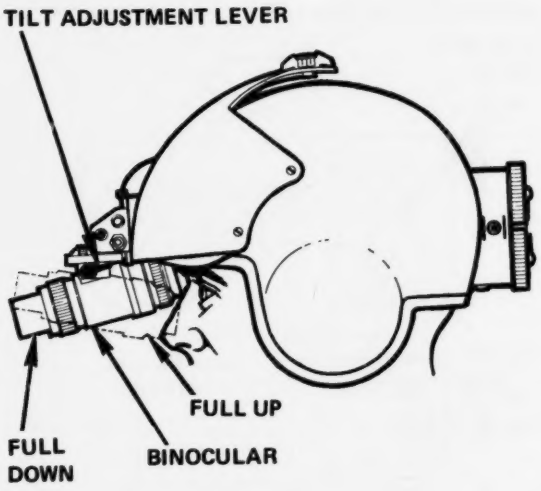
Allows you to move monoculars sideways to match distance between eyes. Eye span adjustment is performed by turning eye span adjustment knob. The eye span scale displays the eye span setting. The adjustment is self-locking.



EYE SPAN (FRONT VIEW)

2-3. TILT ADJUSTMENT LEVER

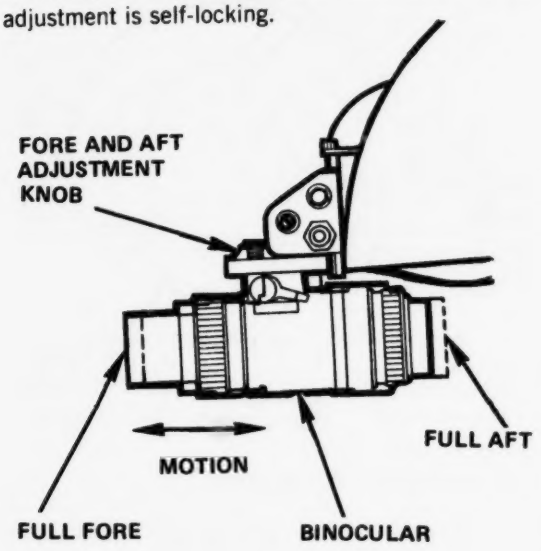
Allows you to tilt the binocular for line of sight. Tilt is performed by moving tilt adjustment lever. This adjustment is self-locking.



TILT ADJUSTMENT POSITION EXTREMES (EXAGGERATED)

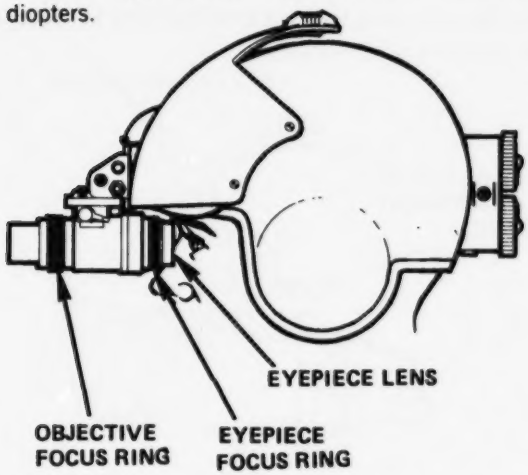
2-4. FORE AND AFT ADJUSTMENT KNOB

Allows monoculars to be moved in and out for eye relief and comfort. Fore and aft adjustment is performed by turning fore and aft adjustment knob. This adjustment is self-locking.



2-5. EYEPIECE FOCUS RING

Allows operator to move eyepiece in and out for clearest image. Adjusts from plus two to minus six diopters.

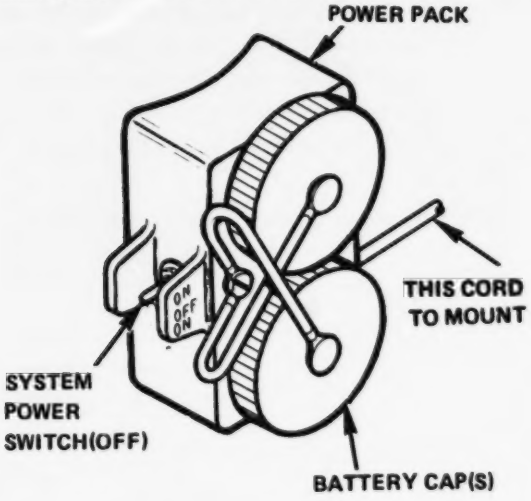


2-6. OBJECTIVE FOCUS RING

Allows operator to move objective lens in and out for clearest view of the images ranging from 254 mm away to infinity.

2-7. SYSTEM POWER SWITCH

Switch is located on the power pack. The three switch positions are: ON/OFF/ON.



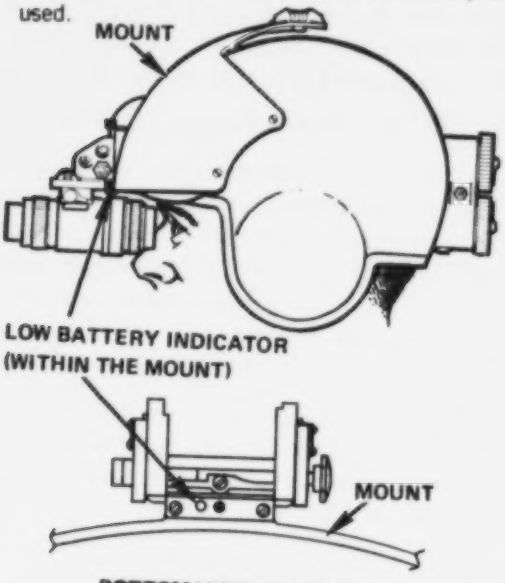
The switch selects one of the following conditions:

ON Power can be from aircraft or from battery. Power can be supplied from either ON position. Moving switch to other ON position selects other battery. (When aircraft power is used, the battery is not supplying power. When aircraft power is not being used, the battery supplies the power.)

OFF All power (aircraft or battery) is shut off.

2-8. LOW BATTERY INDICATOR

A light emitting diode shines a dim red light in your field of view (not directly in your eyes) when there are about 30 minutes of life left in the battery being used.



BOTTOM VIEW OF MOUNT

Section II. PREOPERATIONAL CHECKS

2-9. PREOPERATIONAL CHECKS

a. General. These checks help the ANVIS operator determine if his equipment is ready for operation. Perform them before each use of equipment. Report defects using proper forms. See TM 38-750.

b. Wiring. Check for loose or frayed wires.

c. Low Battery Indicator. Set system power switch to lower ON position. Unscrew lower battery cap. Low battery indicator should come on. Screw lower battery cap back on. Set system power switch to upper ON position. Unscrew upper battery cap. Low battery indicator should come on. Screw upper battery cap back on. Set system power switch to OFF.

d. Lenses. Inspect objective and eyepiece lenses for dirt, dust, fingerprints, scratches, chips, or cracks. If necessary, clean and dry lenses using clean water and lens paper (item 1, appx D).

e. Binocular Contacts. Inspect dual contacts for dirt and wear. Clean if dirty with wet cloth and dry. Send to AVUM if worn.

f. Adjustments. Move adjustments through their full range to ensure that they move freely. These adjustments include the vertical adjustment knob, eye span knob, fore and aft adjustment knob, tilt adjustment lever, eyepiece focus ring, and objective focus ring.

Section III. OPERATION UNDER USUAL CONDITIONS

2-10. ASSEMBLY AND PREPARATION FOR USE

AN/AVS-6(V)1 and AN/AVS-6(V)2 system consists of a shipping and storage case containing the following:

- mount
- carrying case.

Open the shipping and storage case and check that all parts are there. Remove the canvas carrying case and check to make sure the following parts are there:

- binocular assembly
- power pack
- screwdriver
- operator's manual
- package of lens paper
- neck cord
- velcro attachment.

2-11. INSTALL OR REPLACE MOUNT

NOTE

- This procedure is for standard mount only.
- Use a flat table to install or replace mount.

Step 1. Use screwdriver provided in carrying case; remove all four attachment screws from SPH-4 visor guard. Set screws aside.

NOTE

- If retaining nuts fall out of helmet, set them aside.
- If tape is available, tape retaining nuts to inside of helmet.

Step 2. Remove and set aside the two spacers. If spacers do not drop off, leave them on.

Step 3. Slide SPH-4 visor guard and visor off of helmet.

Step 4. Use screwdriver from carrying case; remove lock stem center screw from SPH-4 visor guard by turning CLOCKWISE.

Step 5. By hand, unscrew lock release button-head.

Step 6. Pick button-head washer up off of stem.

Step 7. Turn stem ¼-turn and slide it out of slots in SPH-4 visor guard and visor.

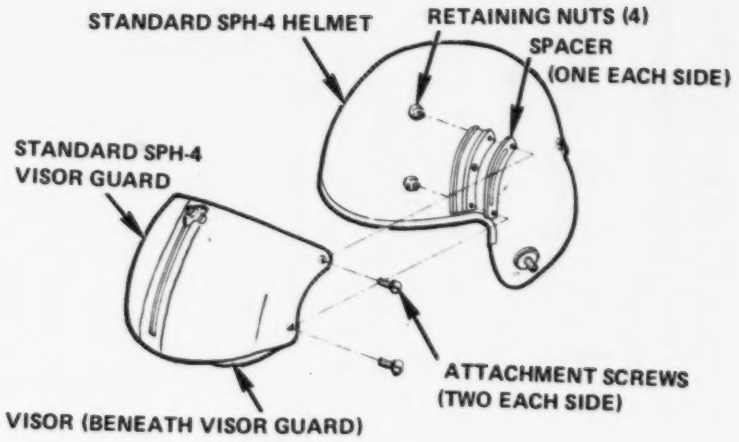
Step 8. Separate visor from SPH-4 visor guard.

Step 9. Remove screw and nut from extension strap.

Step 10. Insert nut into slot in visor. Place extension strap over nut. Insert screw.

Step 11. Carefully tighten screw. Do not overtighten.

Step 12. Place stem up through the slots in extension strap and mount.


STANDARD SPH-4 HELMET
RETAINING NUTS (4)
SPACER
(ONE EACH SIDE)
STANDARD SPH-4
VISOR GUARD
ATTACHMENT SCREWS
(TWO EACH SIDE)
VISOR (BENEATH VISOR GUARD)

Step 13. Place button-head washer onto stem.

Step 14. By hand, screw lock release button-head onto stem.

Step 15. Use screwdriver; screw lock stem center screw COUNTERCLOCKWISE into stem.

Step 16. Lock visor in full up position.

Step 17. Aline spacers with attachment screw holes.

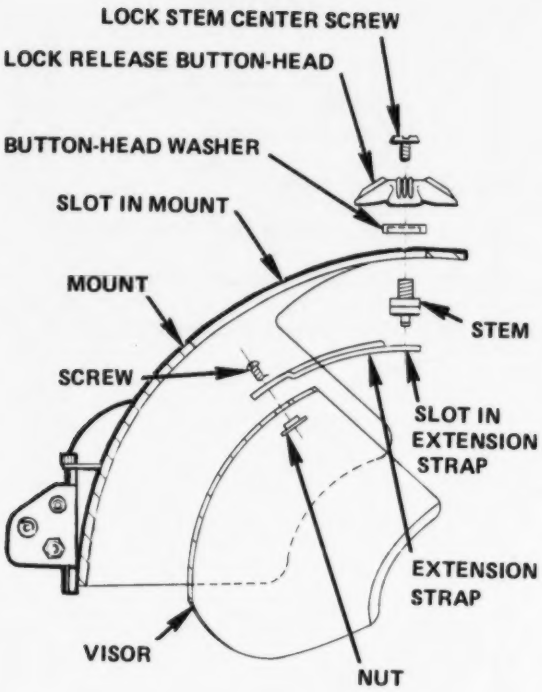
Step 18. Aline visor and mount with tracks in helmet.

Step 19. Slide mount to line up screw holes.

Step 20. Press attachment screws through holes in mount and through holes in spacers and helmet. Hold retaining nuts inside helmet.

Step 21. Engage screws with retaining nuts inside helmet.

Step 22. Put all four screws in first before tightening.


LOCK STEM CENTER SCREW
LOCK RELEASE BUTTON-HEAD
BUTTON-HEAD WASHER
SLOT IN MOUNT
MOUNT
STEM
SCREW
SLOT IN EXTENSION STRAP
EXTENSION STRAP
VISOR
NUT

CAUTION

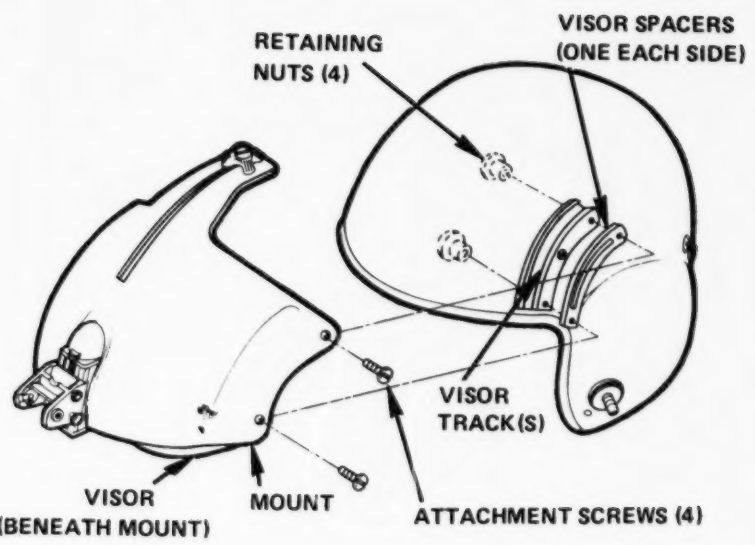
Do NOT overtighten screws. Overtightening may strip threads.

Step 23. Tighten screws.

Step 24. Make sure that visor moves freely.

Step 25. Wipe visor clean with soft cloth.

Step 26. Turn in SPH-4 visor guard to AVUM.


RETAINING
NUTS (4)
VISOR SPACERS
(ONE EACH SIDE)
VISOR
TRACK(S)
VISOR
(BENEATH MOUNT)
MOUNT
ATTACHMENT SCREWS (4)

2-12. INSTALL OR REPLACE OFFSET MOUNT

NOTE

Offset mount fits onto existing visor guard of SPH-4 helmets modified with helmet-mounted sight system.

The offset mount consists of:

Spacer

Spacer Screws (2)

Spring Clip

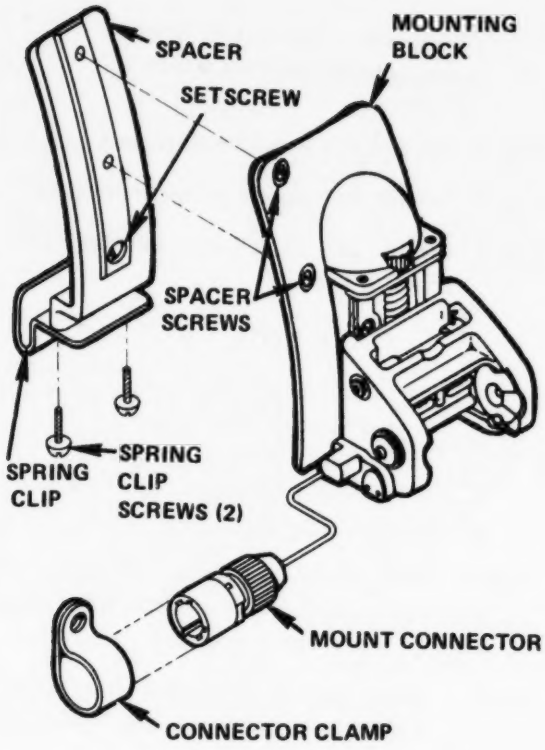
Spring Clip Screws (2)

Set Screw

Connector Clamp

Mounting Block

The offset mount will come with spring clip screws, spacer screws, setscrew , and spring clip attached to the spacer.


SPACER
MOUNTING BLOCK
SETSCREW
SPACER SCREWS
SPRING CLIP
SPRING CLIP SCREWS (2)
MOUNT CONNECTOR
CONNECTOR CLAMP

NOTE

Use a flat table to install or replace offset mount.

Step 1. Set and lock visor in full up position.

Step 2. Remove both spacer screws from spacer.

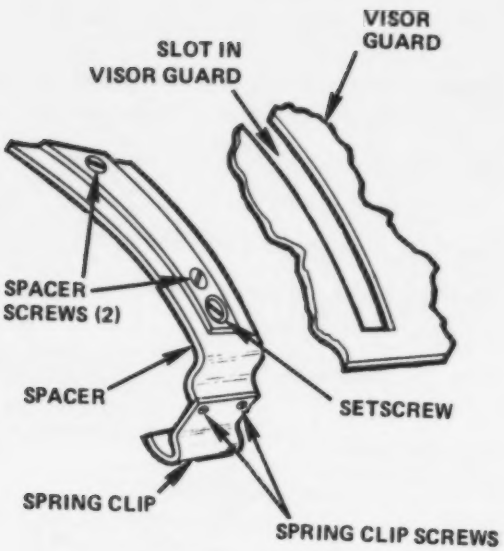
Step 3. Loosen (do not remove) both spring clip screws.

NOTE

Offset mount fits onto the existing visor guard of SPH-4 helmet modified with helmet-mounted sight system.

Step 4. Slide spacer up between visor guard and visor. The pad on the spacer must match the slot in the visor guard.

Step 5. Match cupped part of spring clip to lower edge of helmet. Press up onto lower edge.


VISOR
GUARD
SLOT IN
VISOR GUARD
SPACER
SCREWS (2)
SPACER
SETSCREW
SPRING CLIP
SPRING CLIP SCREWS

Step 6. Tighten setscrew until pad on spacer is almost flush with slot in visor guard. Do not overtighten.

Step 7. Tighten both spring clip screws.

Step 8. Turn vertical adjustment knob to set mounting block at its lowest position.

Step 9. Aline two holes in mounting block to two holes in spacer.

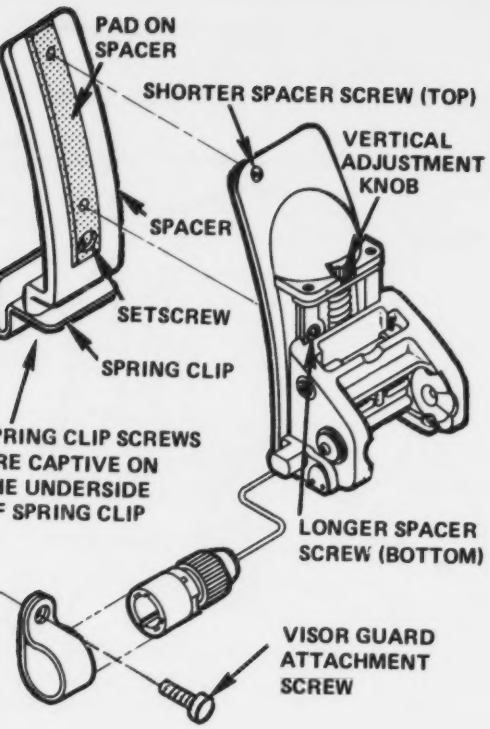
Step 10. Insert spacer screws and tighten.

Step 11. Remove lower right hand visor guard attachment screw.

Step 12. Place connector clamp over screw hole.

NOTE

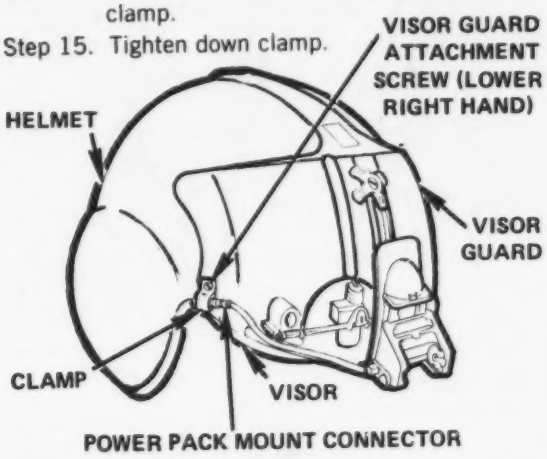
Press finger against retaining nut inside of helmet while remounting attachment screw.


PAD ON SPACER
SHORTER SPACER SCREW (TOP)
VERTICAL ADJUSTMENT KNOB
SPACER
SETSCREW
SPRING CLIP
RING CLIP SCREWS
RE CAPTIVE ON
IE UNDERSIDE
F SPRING CLIP
LONGER SPACER SCREW (BOTTOM)
VISOR GUARD ATTACHMENT SCREW

Step 13. Attach clamp to visor guard by remounting attachment screw. Do NOT tighten it down yet.

Step 14. Insert power pack mount connector into clamp.

Step 15. Tighten down clamp.



NOTE

The visor cannot be used when the offset mount is installed.

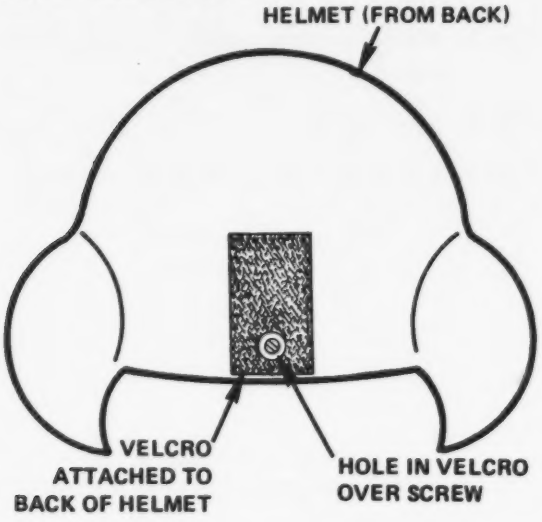
2-13. INSTALL VELCRO FASTENER ON HELMET

NOTE

Be sure that back of helmet is clean.

Step 1. Remove backing from velcro fastener.

Step 2. Center and attach to back of helmet.



2-14. INSTALL BATTERIES IN POWER PACK

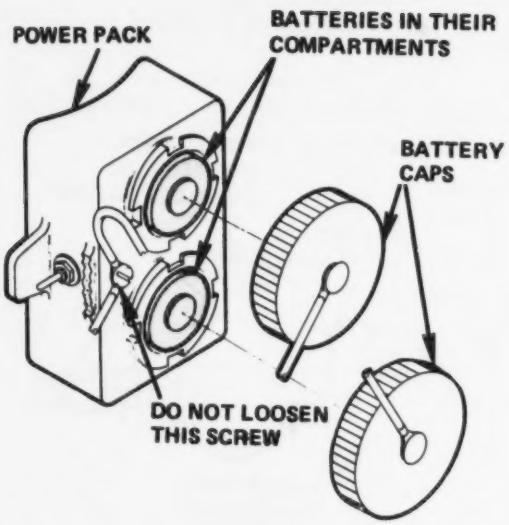
CAUTION

Install both batteries with the + (flat) side in and the − (nipple) side out.

Step 1. Push in and turn battery caps counterclockwise.

Step 2. Install batteries.

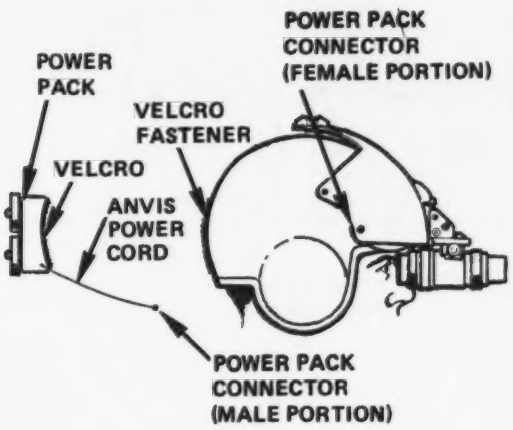
Step 3. Push in and turn battery caps clockwise.



NEGATIVE (-) (NIPPLE)
PART OF BATTERY TOWARDS BATTERY CAP

2-15. INSTALL POWER PACK ON HELMET

Step 1. Press velcro side of the power pack to velcro fastener attached to the helmet.



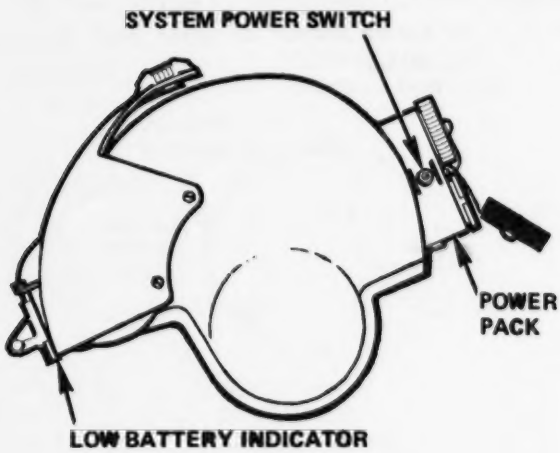
CAUTION

Make sure system power switch is set to OFF.

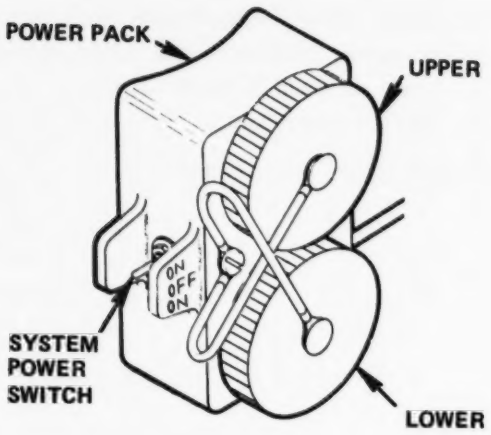
Step 2. Connect male portion of ANVIS power cord to female portion of power pack mount connector.

2-16. CHECK LOW BATTERY INDICATOR

Step 1. Disconnect power pack from power converter. Set system power switch to lower ON position.



Step 2. Unscrew lower battery cap. Low battery indicator should come on. If it does not, replace battery. Check power pack mount connector. If indicator still not on, replace power pack and/or mount.



Step 3. Replace battery cap.

Step 4. Set system power switch to upper ON position.

Step 5. Unscrew upper battery cap. Low battery indicator should come on. If it does not, replace battery. Check power pack mount connector. If indicator still not on, replace power pack and/or mount.

Step 6. Replace battery cap.

Step 7. Set system power switch OFF.

2-17. CONNECT POWER PACK TO POWER CONVERTER

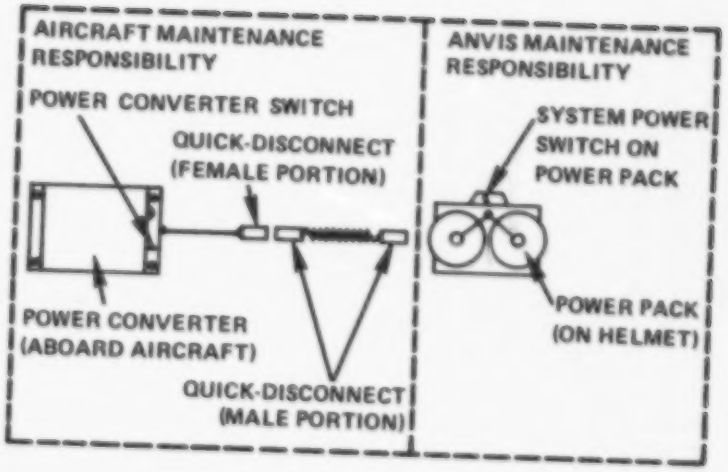
Step 1. Make sure power converter switch is OFF; set system power switch to ON.

Step 2. Insert one end of coiled cord into female portion of aircraft power cord. Insert other end of coiled cord into connector on power pack.

Step 3. Press and hold power converter switch to TEST position. The test light should come on if the power converter is okay. If the test light does not come on, the power converter is bad. Notify aircraft maintenance.

Step 4. Set power converter switch to ON.

Step 5. Set system power switch to OFF.


AIRCRAFT MAINTENANCE RESPONSIBILITY
POWER CONVERTER SWITCH
QUICK-DISCONNECT (FEMALE PORTION)
POWER CONVERTER (ABOARD AIRCRAFT)
QUICK-DISCONNECT (MALE PORTION)
ANVIS MAINTENANCE RESPONSIBILITY
SYSTEM POWER SWITCH ON POWER PACK
POWER PACK (ON HELMET)

2-18. OPERATING PROCEDURES

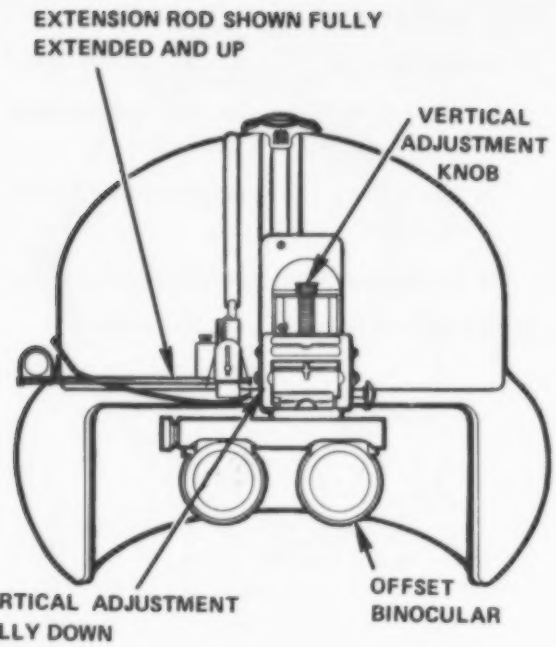
Paragraphs 2-18 through 2-30 describe the operation of both models of ANVIS. When there is a difference in the operation of AN/AVS-6(V)1 and AN/AVS-6(V)2 it is noted.

CAUTION

To prevent damage to the image intensifier tubes, operate binocular in nighttime conditions only. Do not turn binocular on in bright areas unless variable density filters are attached.

CAUTION

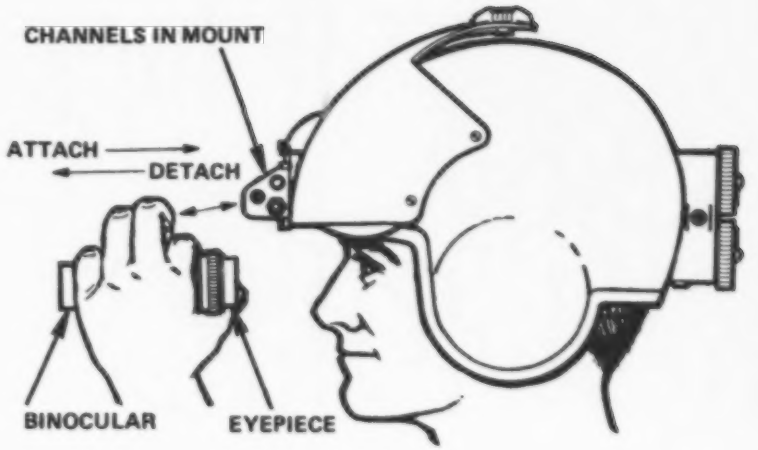
For AN/AVS-6(V)2: To mount and adjust the binocular properly, the helmet-mounted sight system extension rod must be in the fully extended and non-operating (up) position. The helmet-mounted sight system can only be used when binocular is removed or stowed.


EXTENSION ROD SHOWN FULLY
EXTENDED AND UP
VERTICAL
ADJUSTMENT
KNOB
RTICAL ADJUSTMENT
LLY DOWN
OFFSET
BINOCULAR

2-19. ATTACH BINOCULAR TO MOUNT

- Make sure the system power switch is OFF.
- With your helmet on and fitted, grasp binocular with eyepiece end toward you.
- Slide it firmly into channels provided for it in the mount.
- Rotate binocular to operating (down) position.

Be sure that the binocular locks into position.


CHANNELS IN MOUNT
ATTACH
DETACH
BINOCULAR
EYEPIECE

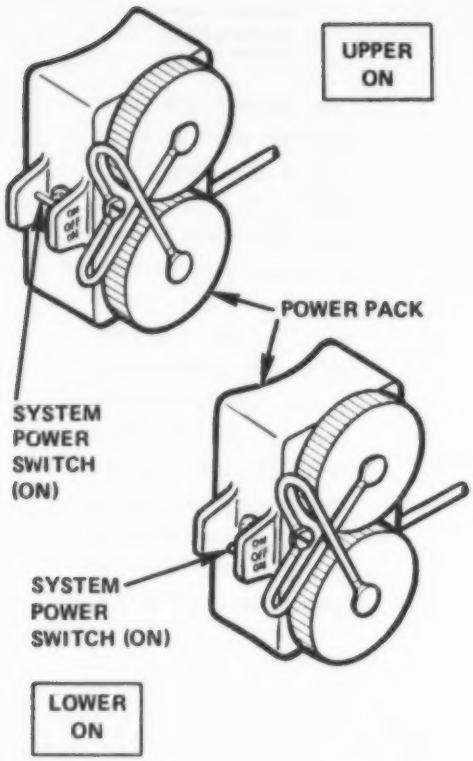
2-20. TURN BINOCULAR ON

CAUTION

To prevent damage to image intensifier tubes, operate binocular in nighttime conditions only. Do not turn binocular on in bright areas unless variable density filters are attached.

Step 1. Set system power switch to either ON position and observe green glow from each monocular.

Step 2. If green glow not present in both monoculars, refer to AVUM.


UPPER
ON
POWER PACK
SYSTEM
POWER
SWITCH
(ON)
SYSTEM
POWER
SWITCH (ON)
LOWER
ON

WARNING

Low battery indicator light tells you that binocular is operating on a weak battery with less than 30 minutes of power. There is an alternate battery in the power pack. Set switch on power pack to other battery. If low battery indicator goes out, you know other battery is good. Low battery indicator will also go out if aircraft power is restored or if switch on power pack is set to OFF.

2-21. BINOCULAR FLIP-UP AND FLIP-DOWN

CAUTION

Do NOT attempt to perform flip-up or flip-down without using the lock release button. Binocular could be damaged or may come out of mount if button is not used.

NOTE

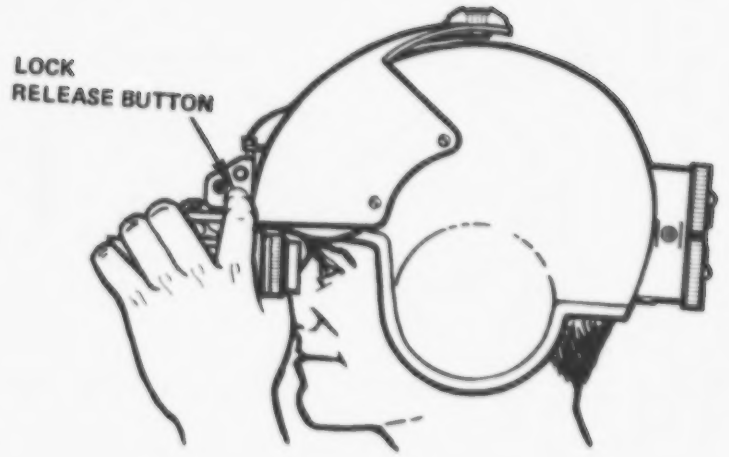
- For AN/AVS-6(V)2: The helmet-mounted sight system extension rod must be in the fully extended and up position to operate the flip-up/flip-down.
- Flip-up feature can be used when you see or suddenly encounter bright light (for example, a missile strike); it can also be used when you don't need to use binocular for short periods of time.

Step 1. Grasp binocular with your left hand.

Step 2. Press in lock release button on mount with finger of left hand as shown.

Step 3. Smoothly but firmly rotate binocular upward toward top of your head.

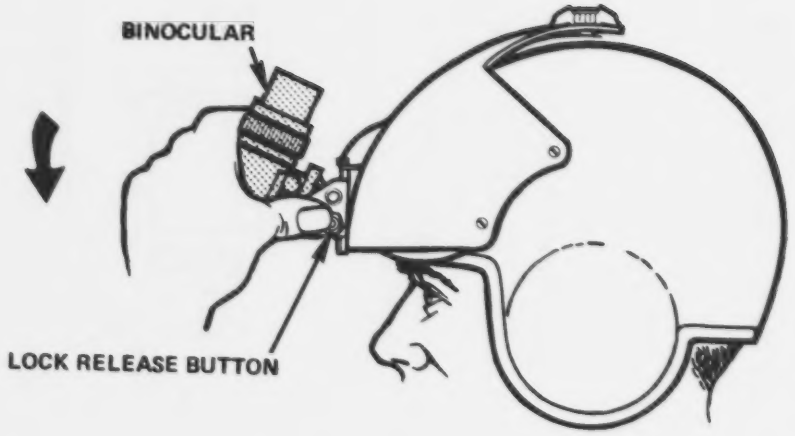
Step 4. Release button. Make sure that binocular is locked in stowed position before releasing your hold on binocular.


LOCK
RELEASE BUTTON

Step 5. To flip binocular back to operating position, grasp binocular with your left hand.

Step 6. Press lock release button with thumb of left hand. Rotate binocular down to operating position.

Step 7. Release button. Make sure that binocular locks into operating position.

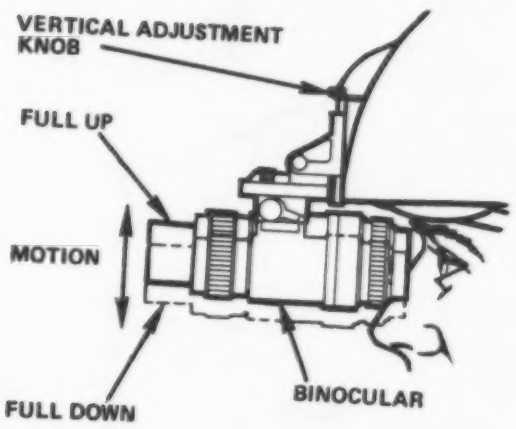


2-53

2-22. SET VERTICAL ADJUSTMENT KNOB

NOTE

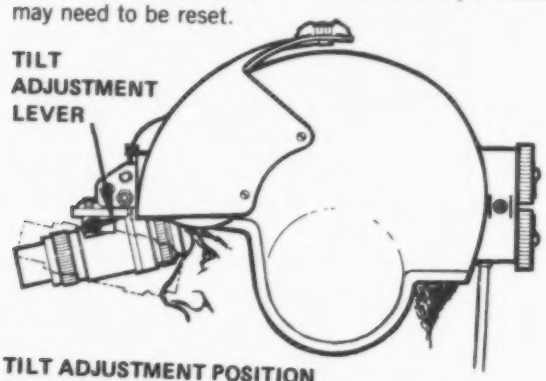
For AN/AVS-6(V)2: to operate vertical adjustment, helmet-mounted sight system extension rod must be in fully extended and up position.



Using your left hand, rotate vertical adjustment knob until you can look straight into binocular without having to move your eyes up or down. Vertical adjustment may need to be reset after tilt adjustment.

2-23. SET TILT ADJUSTMENT LEVER

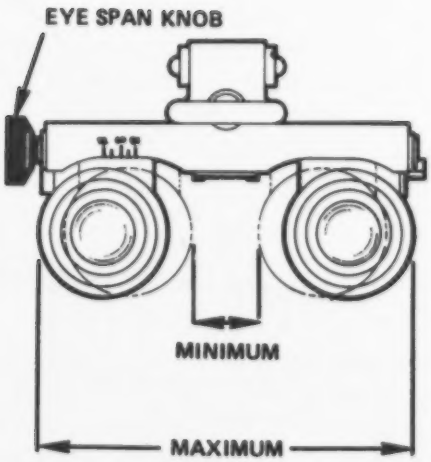
Using your left hand, rotate tilt adjustment lever until you are viewing the area desired. Vertical adjustment may need to be reset.



TILT ADJUSTMENT POSITION EXTREMES (EXAGGERATED)

2-24. SET EYE SPAN KNOB

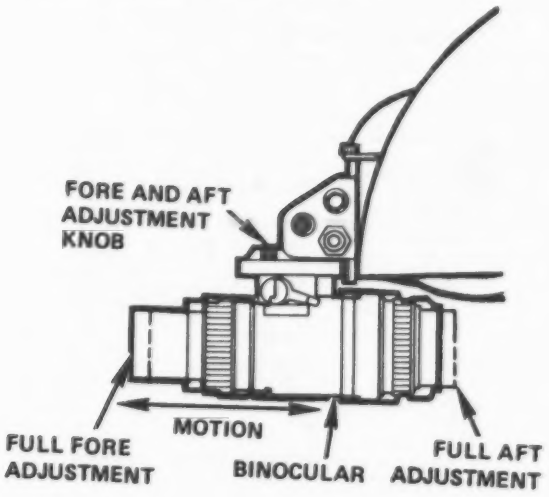
Using your right hand, rotate eye span knob until the scene looks like a single circle. Note setting on eye span scale.



EYE SPAN ADJUSTMENT (FRONT VIEW)

2-25. SET FORE AND AFT ADJUSTMENT KNOB

Using your left hand, rotate fore and aft adjustment knob until full scene is in view.



Do not move binocular so close to your eyes that it restricts your view of instrument panel.

2-26. FOCUSING

NOTE

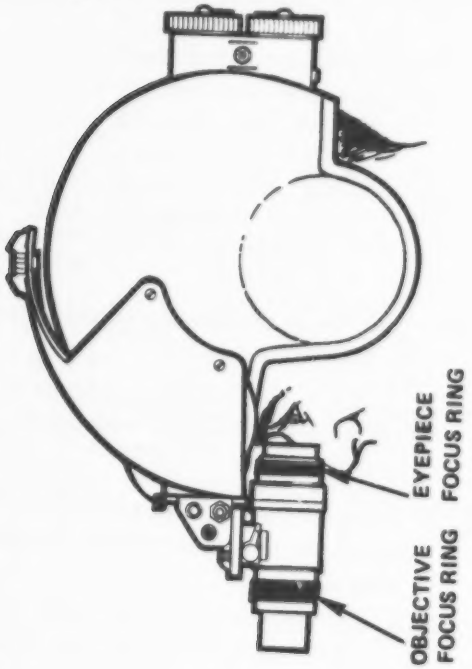
When focusing eyepiece for one eye, do not close other eye. Keep both eyes open and cover one eye with your hand. Be careful not to touch lenses. This is proper way to focus one eye.

Step 1. Look through one side of binocular at scene you wish to view.

Step 2. Rotate objective focus ring (at front of the monocular) until scene is clearest. Repeat for other side.

Step 3. Rotate eyepiece focus ring (at back of monocular) until scene is clearest. Repeat for other side.

Step 4. To focus on a scene at a different distance, just refocus objective focus ring for each side.



2-27. INSPECTION FOR PROPER OPERATION

CAUTION

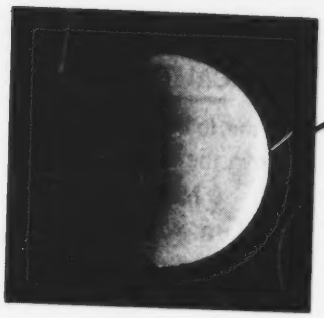
Do the following inspection in the dark.

NOTE

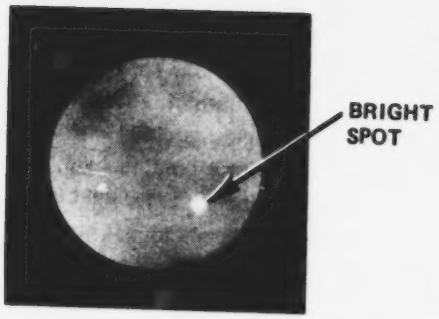
A plain white scene (such as a wall) is best for checking proper operation.

Inspect binocular (operating) for shading, edge glow, bright spots, flashing, flickering, or intermittent operation as follows:

SHADING. If shading is present, you will not see ully circular image. Shading always begins on the edge and moves inward. If you see shading, turn in binocular to AVUM.



EDGE GLOW. Edge glow is a bright area in outer portion (edge) of your viewing area. Cup your hand over objective lens to block out all light. Edge glow will still be visible. If you see edge glow, turn in binocular to AVUM.



BRIGHT SPOTS. Bright spots may flicker or may appear constant. Cup your hand over objective lens blocking out all light. Bright spots will still be visible. If you see bright spots, turn in binocular to AVUM.

best copy available

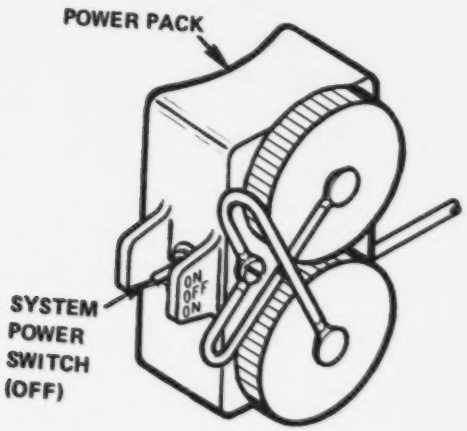
NOTE

If the bright spots or edge glow go away when you block out the light, the binocular may not be bad. Check to make sure the bright spots or edge glow were not simply a bright area in the scene you were looking at. Make sure shading is not the result of improper tilt, eye span, or vertical adjustments.

FLASHING, FLICKERING, OR INTERMITTENT OPERATION. The binocular appears to flicker on and off, or the output flashes. This can occur in one or both sides. If more than one flicker is seen, turn in binocular to AVUM.

2-28. TURN POWER PACK OFF

Place system power switch to OFF.



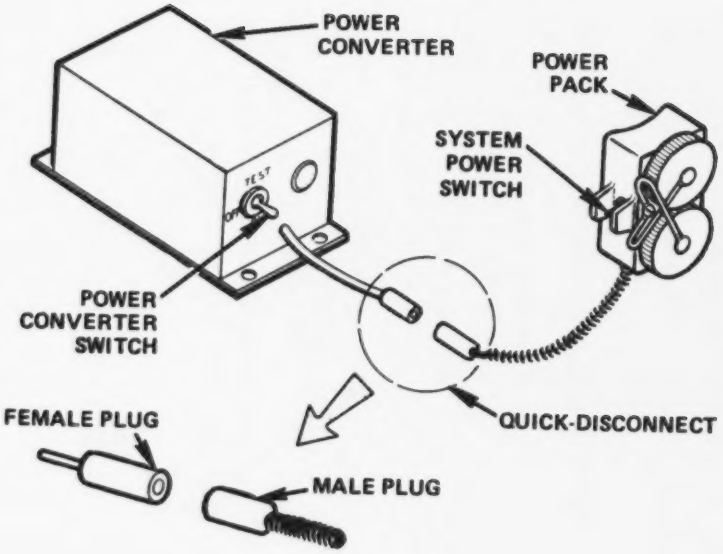
2-29. DETACH FROM AIRCRAFT POWER

CAUTION

To prevent damage to image intensifier tubes, always set switches to OFF on the power converter and power pack BEFORE connecting or disconnecting the quick-disconnect or mount connector.

Step 1. Place power converter switch to OFF.

Step 2. Pull coiled cord plug out of power pack connector.


POWER
CONVERTER
POWER
PACK
SYSTEM
POWER
SWITCH
TEST
POWER
CONVERTER
SWITCH
FEMALE PLUG
QUICK-DISCONNECT
MALE PLUG

NOTE

The quick disconnect feature allows you to exit quickly from aircraft in an emergency without:

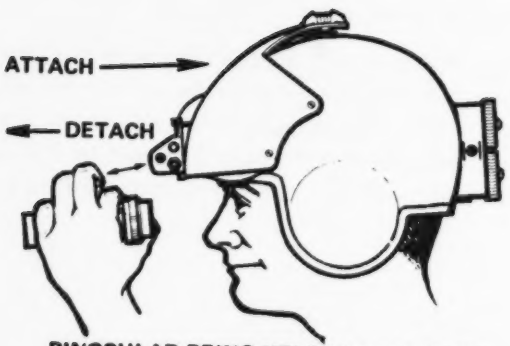
- damaging or turning the binocular off
- getting tangled in cords, or
- being restrained in the cockpit by hard-wire connections.

For routine disconnect, grasp plugs and pull apart. (For emergency exit, this is not necessary.)

2-30. REMOVE BINOCULAR FROM MOUNT

Step 1. Grasp the binocular firmly in one or both hands.

Step 2. Pull it forward with a slight but firm jerk.



BINOCULAR BEING HELD IN LEFT HAND

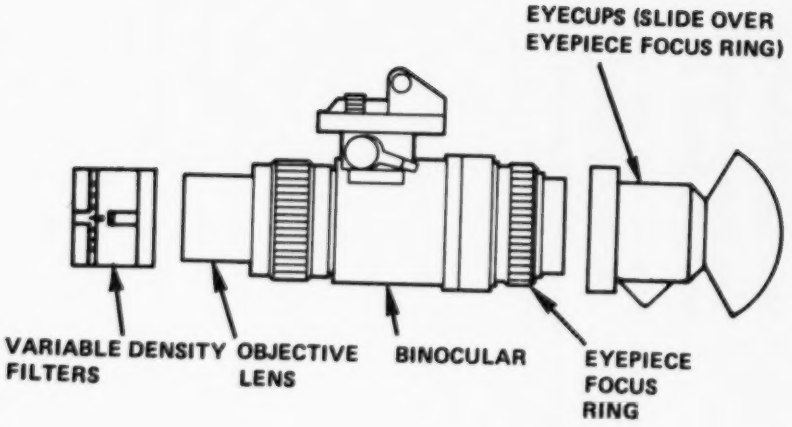
2-31. OPERATION OF AUXILIARY EQUIPMENT

CAUTION

To prevent damage to image intensifier tubes, make sure system power switch is in OFF position before installing variable density filters.

Auxiliary equipment, for use in daylight training, consists of a set of variable density filters and eyecups stored in an auxiliary case.

The variable density filters are installed by pushing the smaller end onto objective lens of both monoculars. Each filter is adjustable, with seven stops (marked 1 through 7). Stop 7 is used for full sun conditions and stop 1 for full overcast conditions.


EYECUPS (SLIDE OVER
EYEPIECE FOCUS RING)
VARIABLE DENSITY
FILTERS
OBJECTIVE
LENS
BINOCULAR
EYEPIECE
FOCUS
RING

NOTE

Focus eyepiece before installing eyecups.

The eyecups are installed by pushing smaller end over eyepiece assembly. Make sure eyecups are installed so that they fit your face.

2-32. PREPARATION FOR MOVEMENT

Step 1. Place power converter switch and system power switch to OFF position.

Step 2. Disconnect male portion of power pack mount connector from mount.

Step 3. Disconnect coiled cord from bottom of power pack.

Step 4. Pull power pack off helmet.

Step 5. Remove batteries from power pack.

Step 6. Place power pack in carrying case.

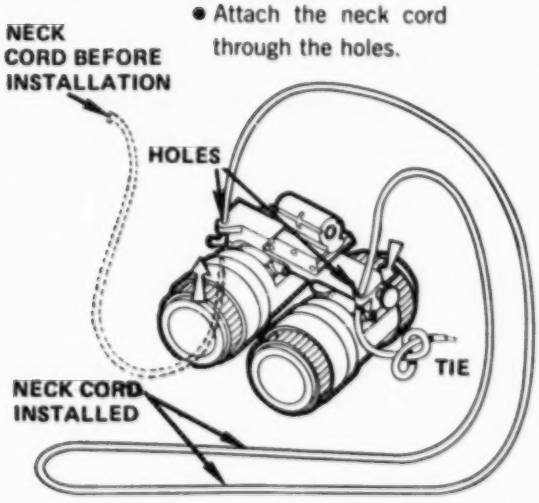
Step 7. Remove eyecups and variable density filters if installed. Place in auxiliary case.

Step 8. Place eyepiece and objective lens caps on binocular.

Step 9. Place binocular in carrying case and close case.

NOTE

- The limited cockpit space in the AH-1 helicopter may prevent use of the flip-up (stowed) position. A neck cord is provided for stowage.
- Attach the neck cord through the holes.



2-33. IDENTIFICATION PLATES

OFFSET BINOCULAR ASSEMBLY

BINOCULAR ASSEMBLY

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

2-34. GENERAL

This section provides information on operating AN-VIS under unusual conditions. Unusual conditions are extremes of environment, such as extreme cold, dusty or sandy areas, rainy or humid conditions, saltwater areas, snow, and biochemical warfare.

Below freezing temperatures:

- Adjustment knobs and lever on binocular and mount can be used with cold weather hand gear.

Dusty or sandy areas:

- Avoid pointing binocular into the wind unless essential to accomplish mission. This will prevent damage to lenses.
- Keep carrying case closed when not removing or replacing items.
- Ensure that all dust and sand is removed from binocular, mount, power pack, and carrying case after operation.
- Clean as necessary. When using lens paper, be especially careful not to rub hard on external lenses.

Rainy or humid conditions:

- Keep carrying case closed when not removing or replacing items.
- Dry off parts and surfaces after exposure to rain or high humidity.
- Do not store any part of ANVIS in a wet carrying case.

- Clean as necessary.

Saltwater areas: In addition to taking the precautions given for operating in rainy or humid conditions:

- After exposure to a saltwater environment, clean ANVIS thoroughly with soft cloth dampened with fresh water.
- Separate, and clean individually, the binocular and all mounting hardware attached to the helmet. Do not immerse.
- Look carefully for possible corrosion on electrical contacts.
- Clean as described in para 3-1.

Biochemical warfare: Binocular can be used while wearing protective mask.

Snow-covered areas: Be extremely careful when flying at low altitudes over snow-covered areas, especially when natural lighting is dim. There may not be enough light to clearly see hazards or dangerous obstacles. This condition is even more serious at higher speeds. Also, be careful of excess light reflecting from snow.

CHAPTER 3
MAINTENANCE INSTRUCTIONS

Section I. LUBRICATION INSTRUCTIONS

No lubrication of AN/AVS-6(V)1 or AN/AVS-6(V)2 is required.

Section II. MAINTENANCE PROCEDURES

3-1. ANVIS CLEANING

CAUTION

- The binocular is a precision electro-optical instrument and must be handled carefully.
- Do not scratch or touch the external lens surfaces.

- Do not use abrasive materials to clean gold-plated electrical contacts.

Step 1. Gently brush off any dirt with a soft, lint-fre cloth only.

Step 2. Moisten cloth with fresh water.

Step 3. Gently wipe external surfaces free of foreig material.

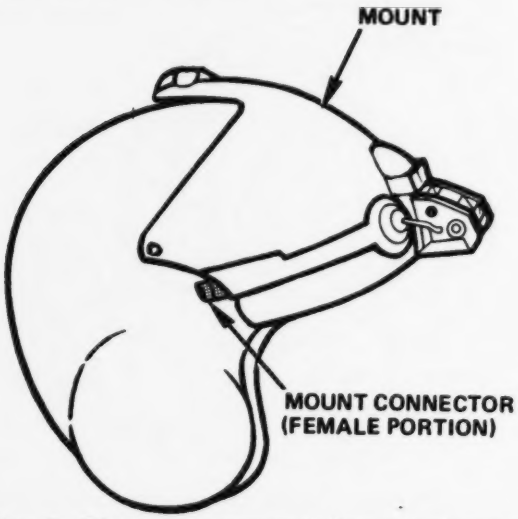
Step 4. Using another dry, clean, soft cloth, dry ar wet surfaces (except external lenses).

Step 5. Carefully remove all loose dirt from lens with lens paper.

Step 6. Dampen a folded lens paper with clea water. Lightly and slowly wipe the lense After one straight stroke, discard lens p per.

Step 7. Repeat this procedure until the glass su faces are clean.

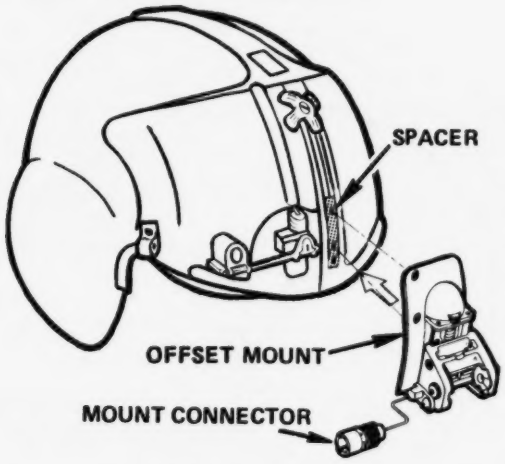
3-3. REPLACE MOUNT



Step 1. Disconnect power pack from mount connector, if attached.

Step 2. Remove mount and replace with new mount (para 2-11).

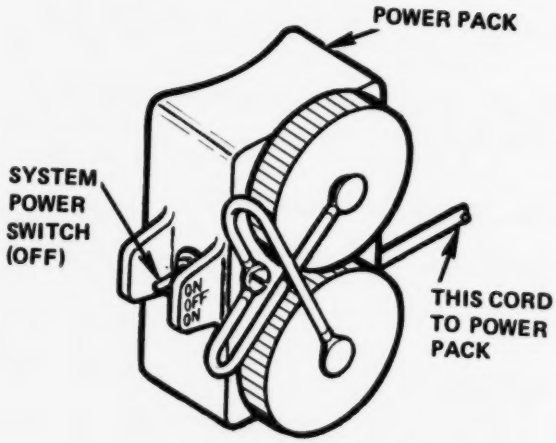
3-4. REPLACE OFFSET MOUNT



Step 1. Disconnect power pack from mount connector, if attached.

Step 2. Remove offset mount and replace with new offset mount (para 2-12).

3-5. REPLACE POWER PACK



Step 1. Disconnect aircraft power, if attached (para 2-29).

Step 2. Disconnect power pack from power pack mount connector, if attached; pull power pack from helmet.

Step 3. Remove batteries (para 2-14); send bad power pack to AVUM.

Step 4. Install batteries in new power pack (para 2-14).

Step 5. Install power pack on helmet (para 2-15).

3-6. REPLACE BATTERIES

Replace batteries using procedures given in para 2-14.

APPENDIX A
REFERENCES

A-1. SCOPE

This appendix lists all forms, field manuals, technical manuals, and miscellaneous publications referenced in this manual.

A-2. FORMS

SF 368 ..... Quality Deficiency Report

A-3. FIELD MANUALS

FM 21-11 ..... First Aid For Soldiers

A-4. TECHNICAL MANUALS

TM 38-750 ... The Army Maintenance Management System (TAMMS)

A-5. MISCELLANEOUS PUBLICATIONS

CTA 50-970 ... Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items)

DA PAM 310-1 ..... Consolidated Index of Army Publications and Blank Forms

APPENDIX B
COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

Section I. INTRODUCTION

B-1. SCOPE

This appendix lists components of end item and basic issue items for the ANVIS to help you inventory items required for safe and efficient operation.

B-2. GENERAL

The Components of End Item List and Basic Issue Items (BII) Lists are divided into the following sections:

a. *Section II. Components of End Item.* This listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment.

As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist you in identifying the items.

b. *Section III. Basic Issue Items (BII).* These are the minimum essential items required to place the ANVIS in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the ANVIS during operation and whenever it is transferred between property accounts. The illustrations will assist you with hard-to-identify items. This manual is your authority to request/requisition replacement BII, based on TOE/MTOE authorization of the end item.

B-3. EXPLANATION OF COLUMNS

The following provides an explanation of columns found in the tabular listings:

a. *Column (1)—Illustration Number (Illus Number).* This column indicates the number of the illustration in which the item is shown.

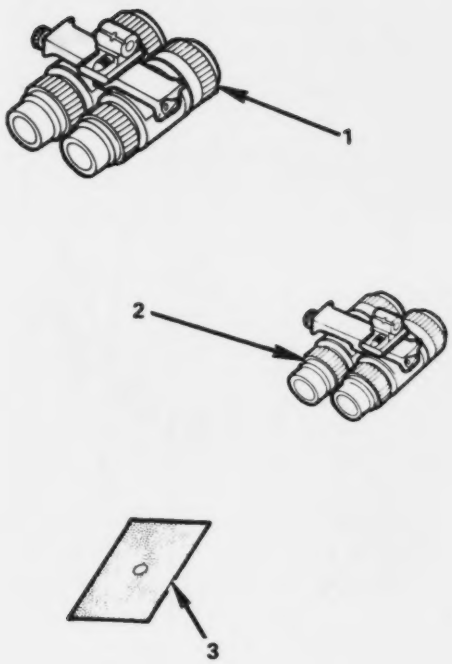
b. *Column (2)—National Stock Number.* Indicates the National Stock Number assigned to the item and will be used for requisitioning purposes.

c. *Column (3)—Description.* Indicates the Federal item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by part number. If item needed differs for different models of this equipment, the model is shown under the "Usable On" heading in this column.

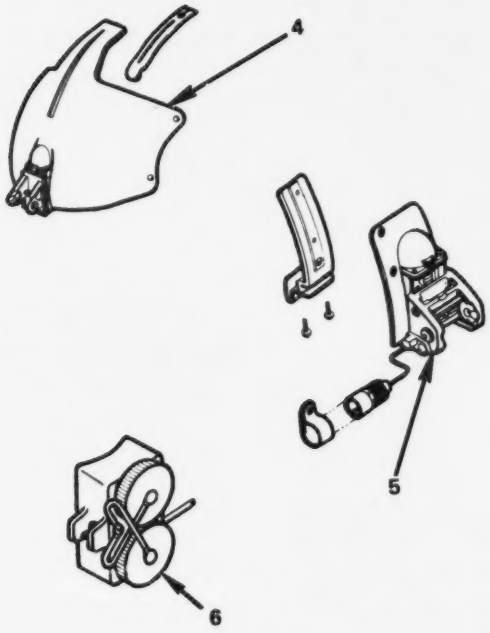
Code	Used On
FF4	AN/AVS-6(V)1
FF5	AN/AVS-6(V)2

d. *Column (4)—Unit of Measure (U/M).* Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, pr).

e. *Column (5)—Quantity Required (Qty rqr).* Indicates the quantity of the item authorized to be used with/on the equipment.



B-4.1



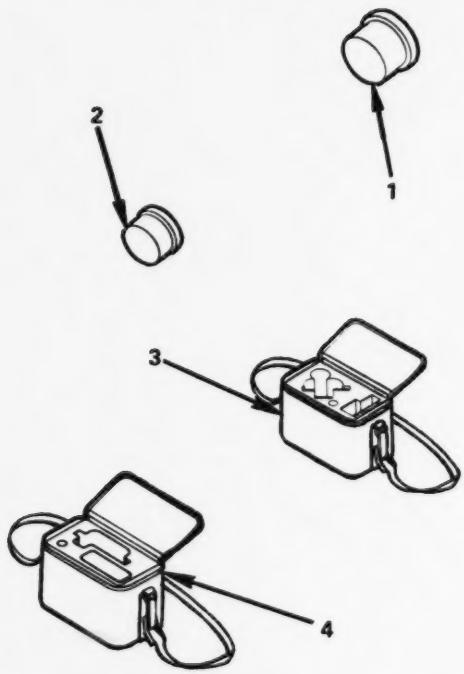
B-4.2

Section II. COMPONENTS OF END ITEM

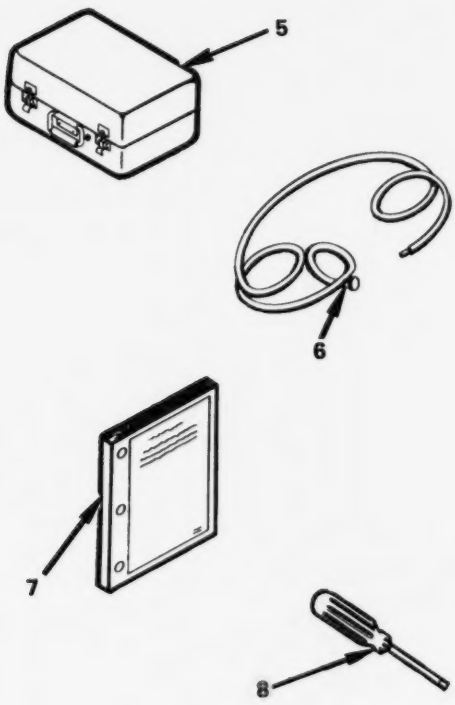
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM and PART NUMBER	USABLE on CODE	(4) U/M	(5) QTY RQR
1		BINOCULAR ASSEMBLY (54490) 5002520	FF4	EA	1
2		BINOCULAR ASSEMBLY, OFFSET (54490) 5002636	FF5	EA	1
3		FASTENER TAPE, HOOK AND PILE ATTACHMENT (54490) 5002516-2	F	EA	1

Section II. COMPONENTS OF END ITEM (cont)

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM and PART NUMBER	USABLE on CODE	(4) U/M	(5) QTY RQR
4		MOUNT ASSEMBLY (54490) 5002530	FF4	EA	1
5		OFFSET MOUNT ASSEMBLY (54490) 5002610	FF5	EA	1
6		POWER PACK ASSEMBLY (54490) 5002510		EA	1



B-6.1



B-6. 2

Section III. BASIC ISSUE ITEMS

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM and PART NUMBER	USABLE on CODE	(4) U/M	(5) QTY RQR
1		CAP (EYEPIECE LENS) (90017) SF10		EA	2
2		CAP, LENS (OBJECTIVE) (80063) SM-C-657307-3		EA	2
3		CASE, CARRYING (54490) 5002602-1	FF4	EA	1
4		CASE, CARRYING (54490) 5002602-2	FF5	EA	1

Section III. BASIC ISSUE ITEMS (cont)

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM and PART NUMBER	USABLE on CODE	(4) U/M	(5) QTY RQR
5		CASE, SHIPPING AND STORAGE (54490) 5002480-1		EA	1
6		NECK CORD ASSEMBLY (54490) 5002601		EA	1
7		OPERATOR'S MANUAL TM 11-5855-263-10		EA	1

Section III. BASIC ISSUE ITEMS (cont)

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM and PART NUMBER	USABLE on CODE	(4) U/M	(5) QTY RQR
8	5120-00 -236- 2140	SCREWDRIVER, MEDIUM-SLOTTED 81348/GGG-S-121		EA	1

APPENDIX C
ADDITIONAL AUTHORIZATION LIST

Section I. INTRODUCTION

C-1. SCOPE

This appendix lists additional items you are authorized for the support of the ANVIS.

C-2. GENERAL

This list identifies items that do not have to accompany the ANVIS and that do have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

C-3. EXPLANATION OF LISTING

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are listed in alphabetical sequence by item name under the type document (i.e., CTA, MTOE, TDA, or JTA) which authorizes

the items(s) to you. If item required differs for different models of this equipment, the model is shown under the "Usable on" heading in the description column. These codes are identified as:

Code	Used ON
FF4	AN/AVS-6(V)1
FF5	AN/AVS-6(V)2

Section II. ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION FSCM and PART NUMBER	(3) USABLE ON CODE	(3) U/M	(4) QTY AUTH
6135-01-090-5365	BATTERY, BA-5567( )/U		EA	2
	EYECUPS			
	(06650) 294258-1 (LEFT)		EA	2
	(06650) 294258-2 (RIGHT)		EA	1
	VARIABLE DENSITY DAYLIGHT FILTER		EA	1
	(06650) 023163		EA	2

APPENDIX D
EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. SCOPE

The appendix lists expendable supplies and materials you will need to operate and maintain the ANVIS. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

D-2. EXPLANATION OF COLUMNS

a. *Column (1)—Item Number.* This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, item 5, App. D.").

b. *Column (2)—Level.* This column identifies the lowest level of maintenance that requires the listed item.

C—Operator/Crew

c. *Column (3)—National Stock Number.* This is the national stock number assigned to the item; use it to request or requisition the item.

d. *Column (4)—Description.* Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.

e. *Column (5)—Unit of Measure (U/M).* Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	C	6640-00-240-5851	PAPER, LENS (81348) NNN-P-40	PK

SUBJECT INDEX

	Para	Page
A		
Abbreviations, List of	1-4	1-5
Additional Authorization List		C-1
Section II (Table)		C-3
Adjustments (See specific adjustment.)		
Aircraft Power, Detachment from	2-29	2-66
Ambient Temperature Limits	1-8	1-23
Aviator's Night Vision Imaging System (ANVIS)		
Additional Authorization List		C-1
Adjustments (See specific adjustment.)		
Assembly and Preparation for Use	2-10	2-12
Basic Issue Items		B-1
Cleaning	3-1	3-1
Components of End Item		B-1

	Para	Page
A (CONT)		
Description and Use of Operator's Controls and Indicators		2-1
Differences between Models	1-7	1-21
Equipment Characteristics, Capabilities, and Features	1-5	1-8
Equipment Data	1-8	1-21
Equipment Description		1-8
Expendable Supplies and Materials List		D-1
General Information		1-3
General Maintenance	1-2	1-3
Identification Plates	2-33	2-76
Inspection for Proper Operation	2-27	2-61
Introduction		1-3
Location and Description of Major Components	1-6	1-10
Lubrication		3-1

	Para	Page
A (CONT)		
Maintenance Procedures (See specific maintenance procedure.)		
Model Numbers and Equipment Name	1-1	1-3
Operating Procedures	2-18	2-38
Operation of Auxiliary Equipment	2-31	2-70
Operation under Unusual Conditions	2-34	2-78
Operation under Usual Conditions	2-10	2-12
Preoperational Checks	2-9	2-10
Preparation for Movement	2-32	2-73
Reference Information	1-4	1-4
References		A-1
Reporting Equipment Improvement Recommendations (EIR)	1-3	1-4
Technical Principles of Operation		1-23
Appendixes		
A—References		A-1

	Para	Page
A (CONT)		
B—Components of End Item and Basic Issue Items List		B-1
C—Additional Authorization List .		C-1
D—Expendable Supplies and Materials List		D-1
Artificial Respiration		c
Assembly and Preparation for Use...	2-10	2-12
Attach Binocular to Mount	2-19	2-42
Auxiliary Equipment, Operation of...	2-31	2-70
B		
Basic Issue Items.....		B-1
Section III (Table)		B-6
Battery, Lithium		
Cell Life.....	1-8	1-21
Low Battery Indicator	2-8	2-9
Replacement.....	3-6	3-6
Voltage.....	1-8	1-22
Warning		a

	Para	Page
B (CONT)		
Binocular		
Attachment to Mount	2-19	2-42
Breakaway	1-8	1-22
Definition	1-4	1-6
Flip-up and Flip-down	2-21	2-48
Removal from Mount	2-30	2-69
Turn On	2-20	2-44
Binocular, Offset (See offset binocular.)		
Breakaway, Binocular	1-8	1-22
C		
Capabilities and Features	1-5	1-8
Case, Carrying	1-6	1-21
Case, Storagae	1-6	1-21
Characteristics	1-5	1-8
Checks, Preoperational (See Preoperational Checks.)		

	Para	Page
C (CONT)		
Components of End Item		B-1
Section II (Table)		B-5
Connect Power Pack to Power Converter	2-17	2-35
Current	1-8	1-22
D		
Dark (or Darkened Area)	1-4	1-6
Dark-Adapted	1-4	1-6
Data, Environmental	1-8	1-23
Data, Equipment	1-8	1-21
Data, Optical	1-8	1-22
Description and Use of Operator's Controls and Indicators		2-1
Detach from Aircraft Power	2-29	2-66
Differences between Models	1-7	1-21

	Para	Page
E		
Electrical		
Voltage	1-8	1-22
Current	1-8	1-22
Environmental Data	1-8	1-23
Equipment Characteristics, Capabilities, and Features	1-5	1-8
Equipment Data	1-8	1-21
Equipment Description		1-8
Equipment Used by Operator		1-0
Expendable Supplies and Materials		
List		D-1
Table		D-3
Eyepiece Lens Assembly		
Description	1-4	1-6
Focus		
Location	1-6	1-16
Operation	2-5	2-6
Procedure	2-26	2-59
Range	1-8	1-21

	Para	Page
E (CONT)		
Eye Span		
Check	2-9	2-11
Knob	1-6	1-16
Operation	2-2	2-3
Range	1-8	1-21
Set	2-24	2-56
F		
FM 21-11		c
Field of View	1-8	1-22
First Aid		c
Focus, Eyepiece (See Eyepiece Lens Assembly.)		
Focus, Objective (See Objective Lens Assembly.)		
Fore and Aft Adjustment		
Check	2-9	2-11
Knob (Location)	1-6	1-16
Operation	2-4	2-5

	Para	Page
F (CONT)		
Range	1-8	1-21
Set	2-25	2-58
G		
General Information		1-3
Glossary	1-4	1-6
H		
Helmet, SPH-4	1-6	1-15
I		
Identification Plates	2-33	2-76
Illumination Required	1-8	1-24
Inspect for Proper Operation	2-27	2-61
Install		
Batteries	2-14	2-28
Mount	2-11	2-13

	Para	Page
I (CONT)		
Offset Mount	2-12	2-20
Power Pack	2-15	2-30
Velcro Fastener	2-13	2-27
JKL		
List of Abbreviations	1-4	1-5
Lithium Battery (See Battery, Lithium.)		
Location and Description of Major Components	1-6	1-10
Low Battery Indicator		
Check	2-16	2-32
Operation	2-8	2-9
Lubrication Instructions		3-1
M		
Magnification	1-8	1-22

	Para	Page
M (CONT)		
Maintenance		
Army Maintenance Management System, The	1-2	1-3
General	1-2	1-3
Instructions		3-1
Mount Contacts	1-2	1-3
Major Components, Locations and Description of	1-6	1-10
Model Numbers and Equipment Names	1-1	1-3
Models, Difference between	1-7	1-21
Mount		
Attachment of Binocular to	2-19	2-42
Connector (Description)	1-4	1-6
Description	1-4	1-6
Location and Description of	1-6	1-15
Removal of Binocular from	2-30	2-69
Replacement	3-3	3-3
Mount, Offset (See Offset Mount.)		

	Para	Page
N		
Nomenclature Cross Reference List.	1-4	1-5
O		
Objective Lens Assembly		
Check	2-9	2-10
Description	1-4	1-7
Focus		
Location	1-6	1-14
Operation	2-6	2-6
Procedure	2-26	2-59
Range	1-8	1-21
Offset Binocular		
Description	1-4	1-7
Location and Description of	1-6	1-18
Offset Mount		
Description	1-4	1-7
Replacement	3-4	3-4
Operation of Auxiliary Equipment	2-31	2-70

	Para	Page
O (CONT)		
Operation under Unusual Conditions	2-34	2-78
Operation under Usual Conditions...	2-10	2-12
Operating Procedures	2-18	2-38
Optical Data	1-8	1-22
P		
Power Converter		
Connection to Power Pack	2-17	2-35
Description	1-4	1-7
Location and Description of	1-6	1-10
Power Pack		
Connection to Power Converter ...	2-17	2-35
Location and Description of	1-6	1-10
Operation.....	2-7	2-7
Replacement.....	3-5	3-5
Turn Off.....	2-28	2-65
Power Switch, System.....	2-7	2-7
Preoperational Checks.....	2-9	2-10

	Para	Page
P (CONT)		
Binocular Contacts	2-9	2-11
Eyepiece Focus Ring	2-9	2-11
Eye Span Knob	2-9	2-11
Fore and Aft Adjustment Knob	2-9	2-10
Lenses	2-9	2-10
Low Battery Indicator	2-9	2-11
Objective Focus Ring	2-9	2-11
Tilt Adjustment Lever	2-9	2-11
Vertical Adjustment Knob	2-9	2-10
Wiring	2-9	2-73
Preparation for Movement	2-32	2-51
Proper Operation, Inspection for	2-27	2-43
Purpose of Equipment	1-1	1
Q		
Quick Disconnect, Location and Description of	1-6	1-11

	Para	Page
R		
Reference Information	1-4	1-4
Remove Binocular from Mount	2-30	2-69
Replace		
Batteries	3-6	3-6
Mount	3-3	3-3
Offset Mount	3-4	3-4
Power Pack	3-5	3-5
Velcro Fastener	2-13	2-27
Reporting Equipment Improvement Recommendations	1-3	1-4
S		
SF 368	1-3	1-4
SPH-4 Helmet	1-6	1-15
Scope	1-1	1-3
Storage Case (See Case, Storage.)		
System Power Switch	2-7	2-7

	Para	Page
T		
TM 11-5855-263-20	1-4	1-4
TM 38-750	1-2	1-3
Technical Principles of Operation		1-23
Temperature Limits, Ambient	1-8	1-23
Tilt Adjustment Lever		
Check	2-9	2-11
Location	1-6	1-16
Operation	2-3	2-4
Range	1-8	1-21
Set	2-23	2-55
Turn Binocular On	2-20	2-44
Turn Power Pack Off	2-28	2-65
Type of Manual	1-1	1-3
V		
Vertical Adjustment		
Check	2-9	2-11
Data	1-8	1-22
Knob (Location)	1-6	1-14

	Para	Page
V (CONT)		
Operation	2-1	2-2
Set	2-22	2-54
Visor Guard/Mount (See Mount.)		
Voltage	1-8	1-22
WXYZ		
Warning Page		
Artificial Respiration		c
Danger of Explosion		a
First Aid		c
Toxic Materials		b
Weight	1-8	1-22
Wiring Check	2-9	2-10

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